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(56) Documents Cited

GB 2241874 A	GB 1583763 A	GB 1583325 A
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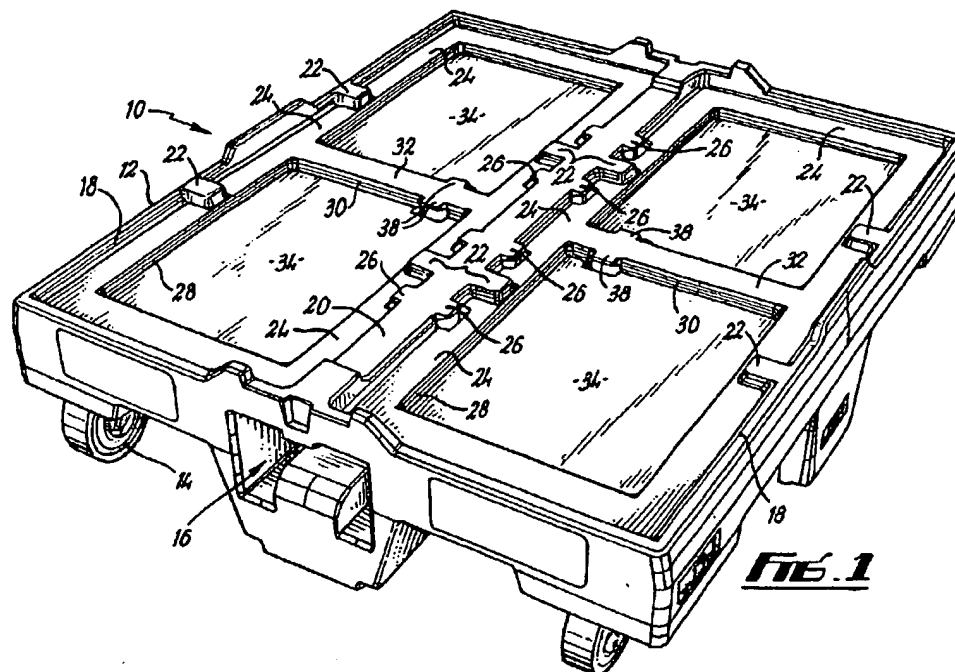
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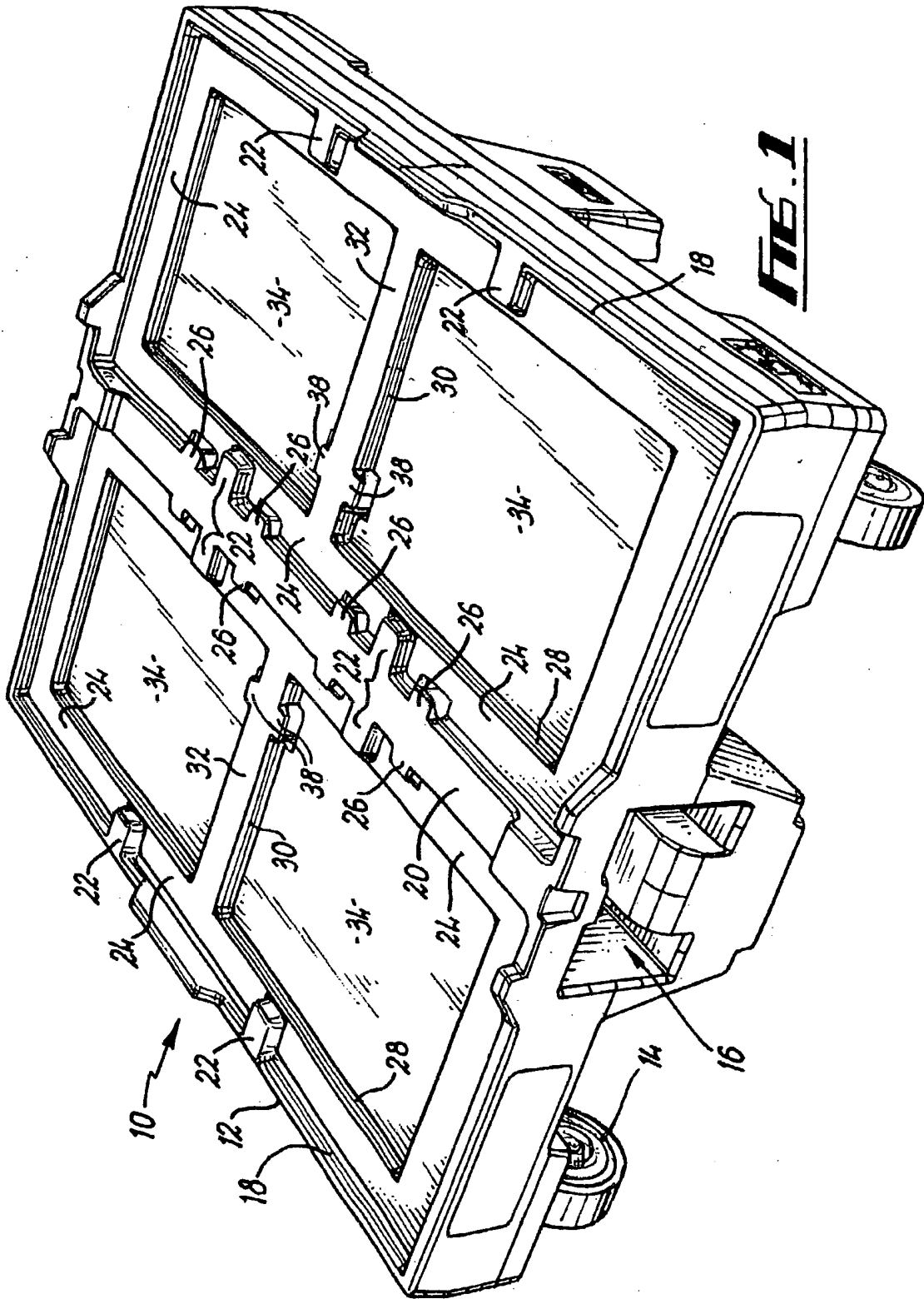
**A carriage for supporting a container**

(57) A carriage in the form of a dolly 10 can support a plurality of stacks of containers. A generally rectangular platform 12 is mounted on wheels 14 and bounded by a wall 18. The wall 18, a central wall 20, piers 22 and ledges 24 define six wells for receiving the base of six stacks of closed containers. A further set of four deeper wells 28 are provided with alignment perpendicular to the six wells of the first set. The further wells are more widely spaced, to allow four piles of nested, lidded, open containers to be supported on the dolly. The additional space allows attached lids to hang down between adjacent piles of nested containers.



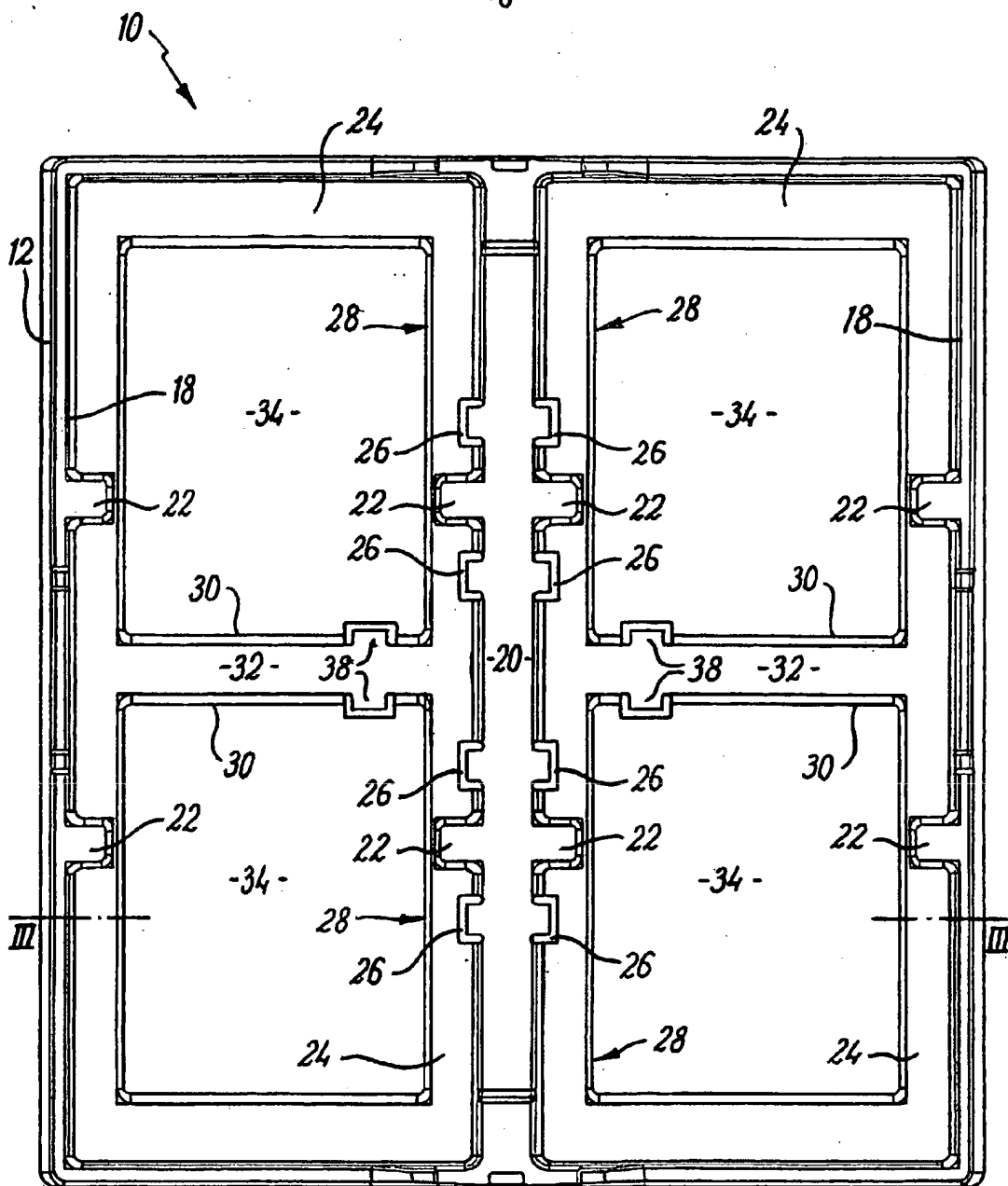
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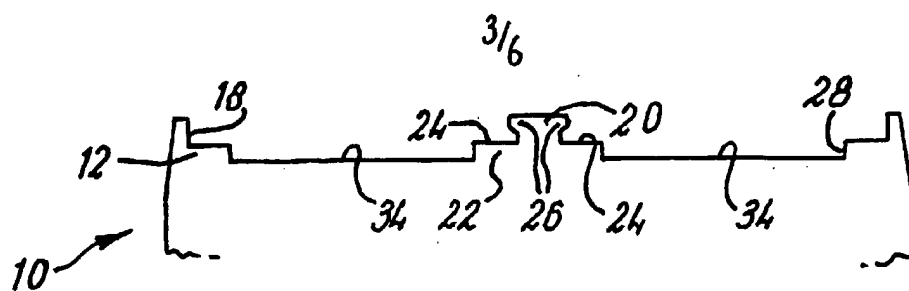


**FIG. 1**

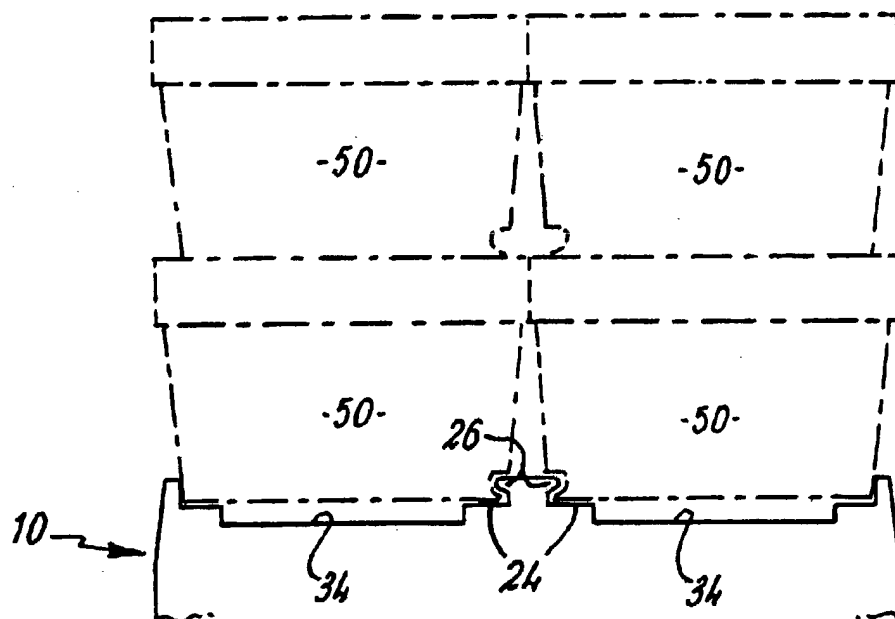
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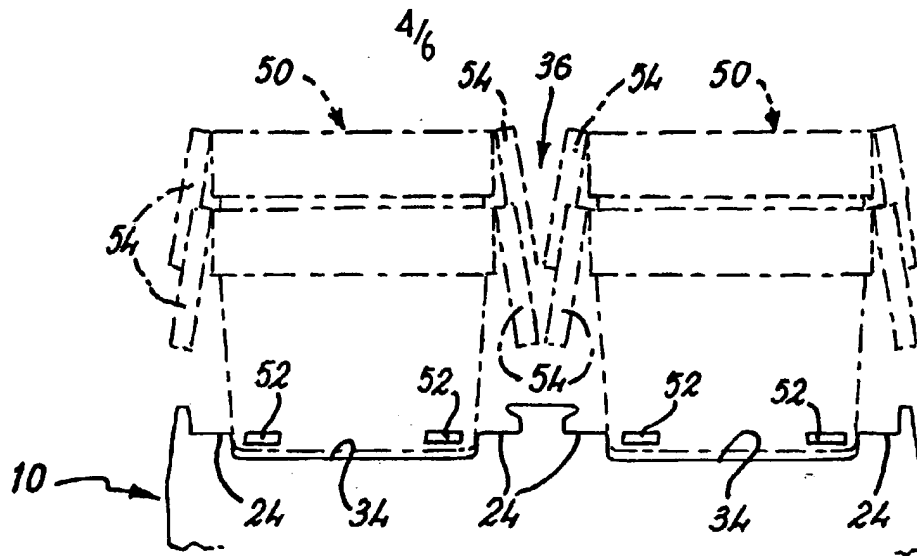
**FIG. 2**



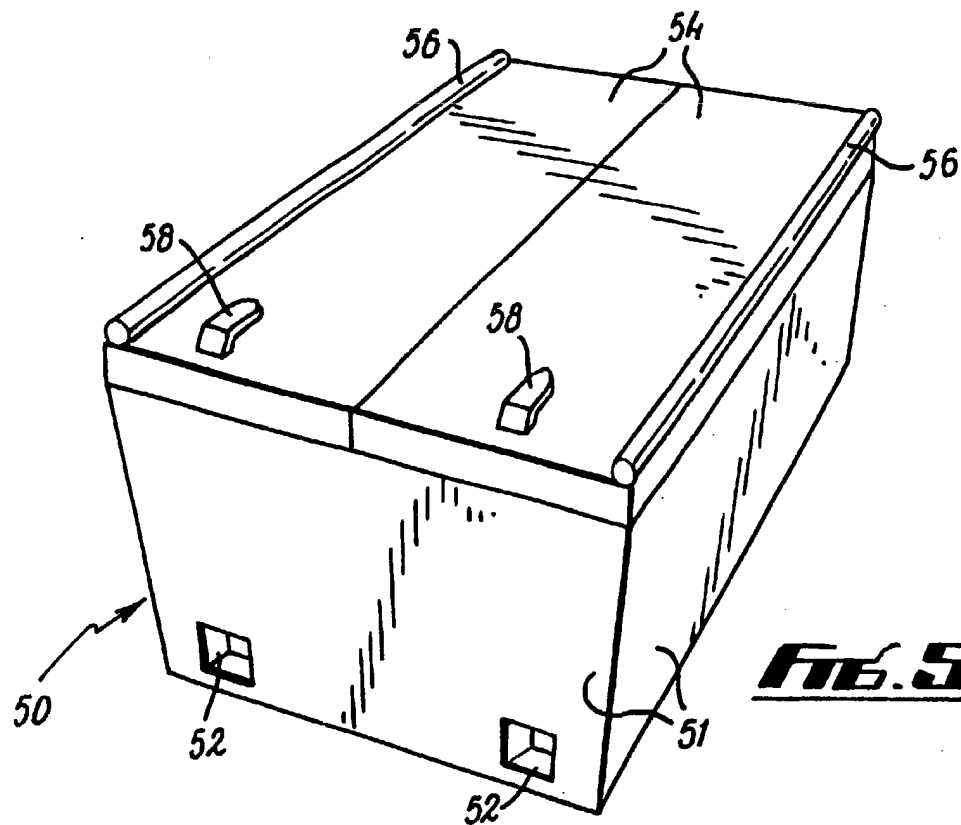
# FE.3A



**FIG. 3B**

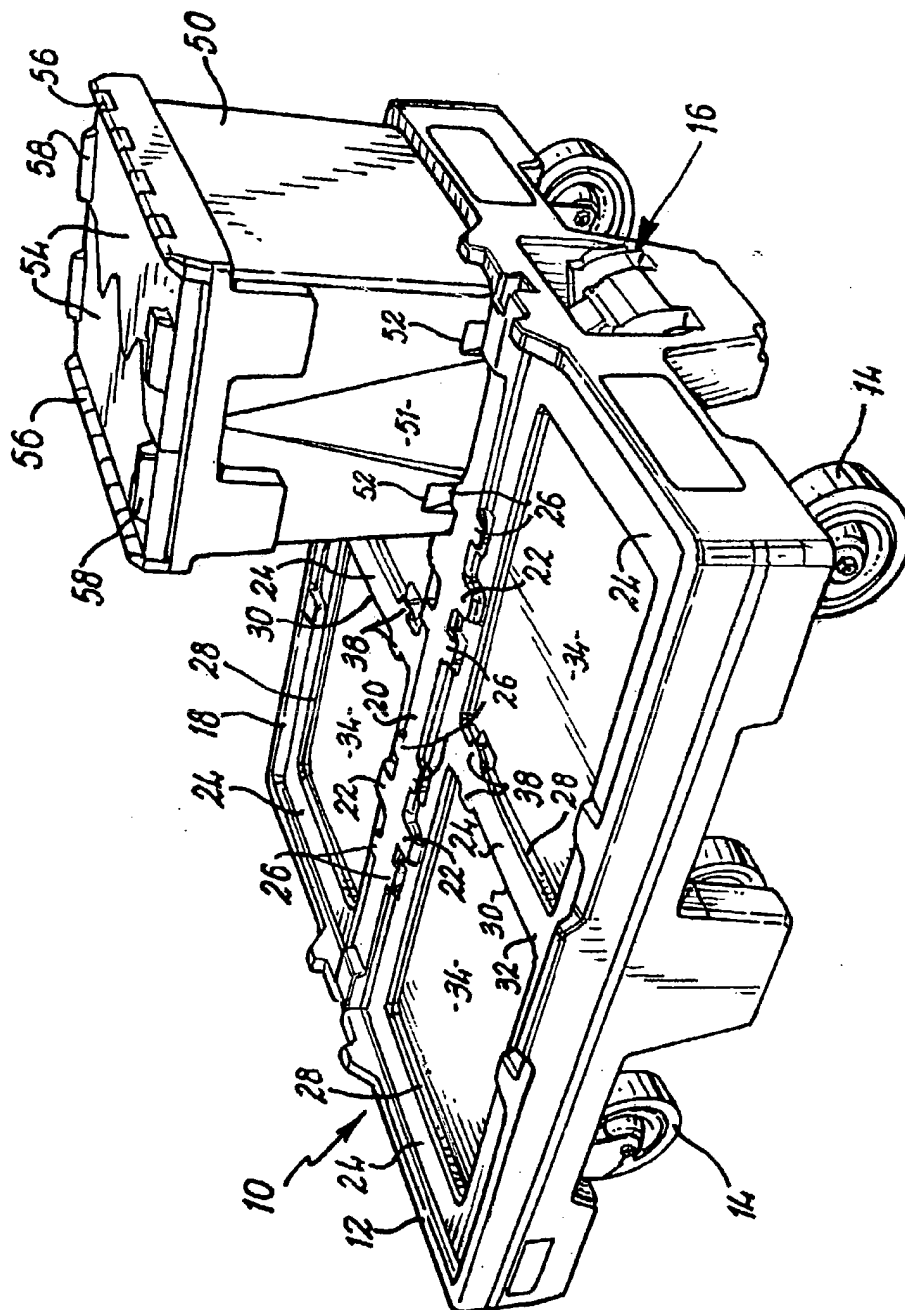


**FIG. 3C**



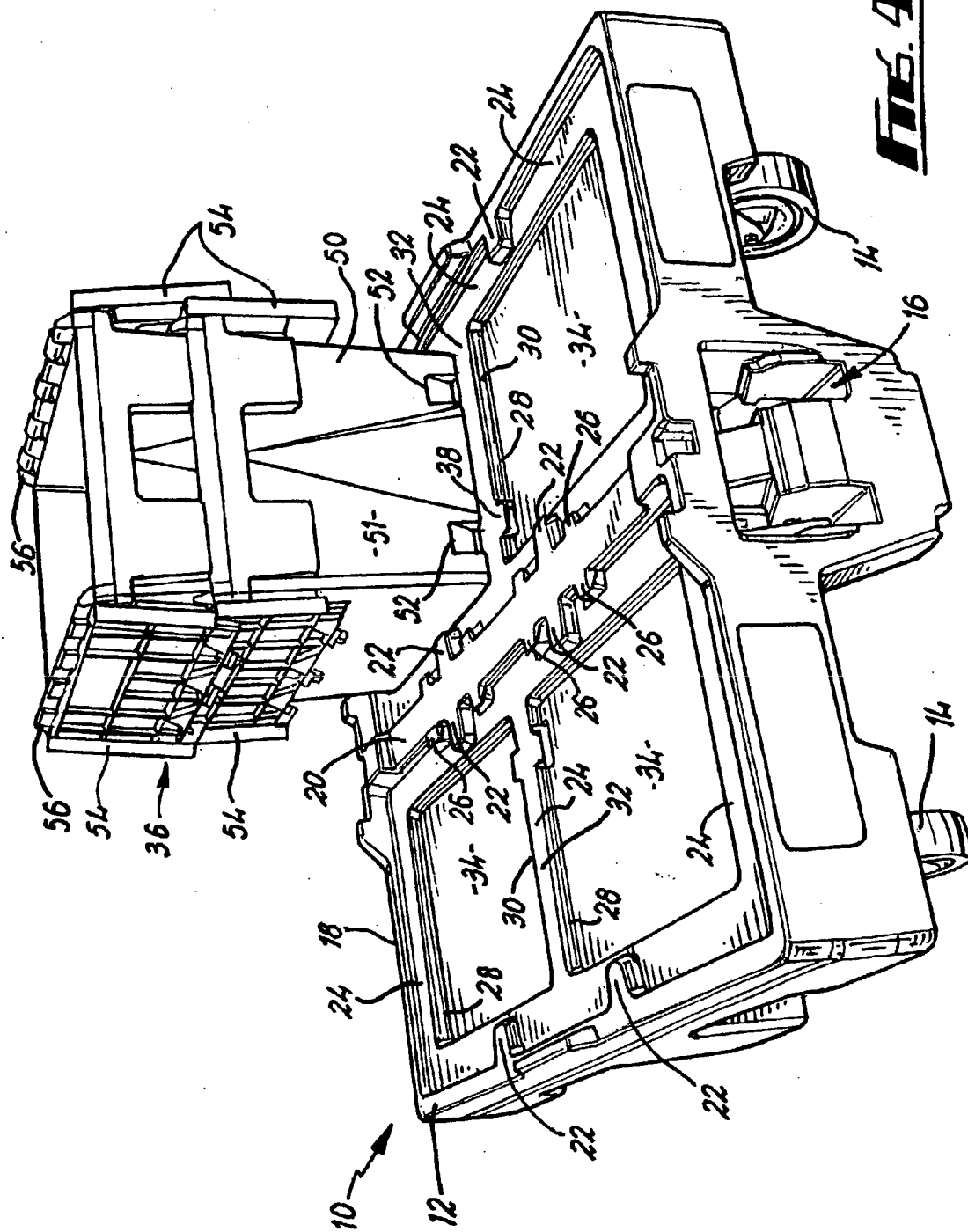
**FIG. 5**

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**Fig. 4a**

**116.41**





A Carriage for Supporting a Container

This invention relates to carriages. More particularly, but not exclusively, the invention relates to carriages in the form of dollies for transporting containers.

In many fields, such as the delivery of goods to retail premises it is necessary to move several containers full of articles from place to place on a site. A dolly is usually used for this purpose, with the containers being stacked on the dolly. However, if the containers are not correctly loaded on the dolly, the resulting stack can be unstable and dangerous.

According to this invention there is provided a carriage for supporting a container during transport, the carriage comprising a platform mounted on rolling means for supporting the container, wherein the platform is provided with a formation for co-operating with the container to hold the container when on the platform.

Conveniently, the formation is adapted to co-operate with a lower region of a wall of the container. Preferably, the formation can co-operate with a corresponding formation on the container.

The formation may comprise a projection or a recess adapted to co-operate with a corresponding recess or projection on the container. Conveniently, the formation comprises a projection extending inwardly of the platform. Preferably, the platform is provided with at least two of said formations to co-operate with corresponding formations on the container.

In one embodiment, the platform is adapted to support a plurality of containers and includes a plurality of formations to co-operate with the plurality of containers.

The platform preferably includes internal wall members defining at least

one locating region, each to locate a container on the platform. The or each locating region is desirably configured to be complementary to the container to be held. The or each locating region may be in the form of a well formed in the platform. The or each well may be complementary in shape to the container intended to be supported, whereby the container may be placed on the platform to mate with the well and therefore be located thereby.

Preferably, the platform defines a plurality of said locating regions, each being adapted to locate a respective one of the plurality of containers. The locating regions may be arranged in first and second sets, the first set being provided to receive a plurality of containers in a first orientation and the second set being provided to receive a plurality of containers in a second orientation. Preferably, the wells of one set are deeper than the wells of another set.

In one embodiment, the platform defines six locating regions for the first set, and four locating regions for the second set. The locating regions in the respective first and second sets may be arranged generally perpendicular to each other.

Embodiments of the present invention will now be described in more detail, by way of example only and with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of a carriage according to the present invention;

Fig. 2 is a plan view from above of the carriage of Fig. 1;

Figs. 3a, 3b and 3c are views along the lines III-III in Fig. 2, showing the carriage in various unloaded and loaded conditions;

Fig. 4a and 4b are perspective views, respectively, of a carriage supporting a closed container and supporting open containers; and

Fig. 5 is a perspective and schematic view of a container suitable for use with the carriage of Figs. 1 and 2.

Referring to Figs. 1 and 2, there is shown a carriage in the form of a dolly 10 for supporting a plurality of containers 50 (Fig. 4). The dolly 10 comprises a generally rectangular platform 12 mounted on wheels 14 in the normal way, allowing the dolly to be rolled across the ground. Wheels, rollers, castors or the like could be used. The platform 12 is bounded by a wall 18. A socket 16 allows a handle (not shown) to be attached to the dolly to assist in manouevring the dolly. The platform defines various wells, to be described below, into which containers (not shown in Fig. 1) can be placed to be supported by the platform, and located by engagement with the walls of the wells, as will be described.

Referring to Fig. 5, there is shown a container 50 suitable for use with the dolly 10 described above. The container 50 comprises side walls 51. Recesses 52 are defined in one of the side walls 51, suitably one of the shorter side walls 51. Lids 54 are hingably mounted at hinges 56 to the upper edge of the longer side walls 51. The container 50 shown in Fig. 5 also comprises projections 58 on the lids 54 for engaging recesses 52 on a container stacked thereon to provide for more stacking. It will be appreciated from the following description that containers having the recesses 52 but not comprising the projections 58 are also suitable for use with the dolly 10, but it is preferred that the containers incorporate both types of feature in the interests of stable stacking.

Returning to Fig. 1, the platform 12 can be seen to be bounded by the wall 18, as described, and sub-divided by a central wall 20, which extends generally lengthwise of the platform. In this example, the platform is symmetrical about the wall 20 so that one side of the platform is a mirror image of the other. Consequently, it will be sufficient to describe in detail one half of the platform 12.

The rectangular outline defined between the wall 20 and the wall 18 is broken at four positions by short piers 22, two of which project perpendicularly from the wall 20 toward the long side of the wall 18, and two of which project back from the long side of the wall 18, toward the central wall 20. The piers 22 therefore sub-divide the outline into three smaller rectangular areas arranged

side-by-side along the length of the platform 12, and with the long sides of these regions adjacent each other.

A ledge 24 runs around the platform, within the outline of the wall 20 and wall 18, being broken by the piers 22, and being at a level lower than the level of the top of the walls 18,20. Thus, the walls 18,20, together with the piers 22 and the ledge 24 form three wells into which the base of a container 50 can be seated, as shown in Fig. 3b and Fig. 4a, when the lids are closed. The provision of three wells of this type allows three stacks of closed containers to be formed along each side of the platform 12, thus allowing the dolly 10 to support a total of six stacks of closed containers.

Location of the base of the container 50 within a well, as described, will provide mechanical location of the base, thus retaining the position of the container relative to the dolly 10. The dimensions of each well are preferably chosen to be a close fit with the base of the container, to enhance the hold of the dolly on the container. In some containers, this hold may be sufficient when provided by means of a close fitting container and well. However, with a container of the type shown in Fig. 5, having recesses 52, the security with which the container is held to the dolly 10 can be further enhanced by providing lugs 26, in the walls of the well, positioned to penetrate the recesses 52 of a container being placed in that well, thereby further helping to hold the container within the well, particularly in the event that the container tilts. It is envisaged that by providing secure location of the lowermost container of a stack on the dolly, the stability of the complete stack will be enhanced, particularly if each container is linked to containers above and below, by recesses 52 and projections 58.

In addition to the three wells which have been described, two further wells are provided as recesses 28 bounded by the ledge 24, and divided one from the other by a dividing wall 30. The upper surface 32 of the wall 30 is at the level of the ledge 24. The bases 34 of these additional wells are set below the level of the ledge 24 and surface 32. The recesses 28 are complementary in

shape to the bottom of the containers 50, and are aligned with their long sides running along the dolly 10, so that the wall 30 meets short sides of the recesses 28. In consequence, two containers can be placed on each side of the dolly 10, one in each recess 28. The long sides of these deeper wells are separated from the deeper wells on the other side of the wall 20 by a greater distance than the long sides of the three upper wells described above, as can be seen from Figs. 3a to 3c (particularly Fig. 3c) and from Figs. 4a and 4b. As a result, containers in the lower wells 28 can have their lids 54 open, as shown in Fig. 3c and Fig. 4b, there being sufficient space at 36 to accommodate the lids 54. Several nested containers, each with their lids open, can therefore be supported in each well 28. As with the upper wells, the lower wells 28 are preferably a close fit with the containers to provide mechanical location for stacking stability, and the stability of the stack may be further enhanced by the provision of further lugs 38 positioned to cooperate with the recesses 52 of the container in the recess 28.

Many variations and modifications can be made to the apparatus described above, without departing from the scope of the present invention. In particular, the number, size and layout of wells could be changed according to operational requirements. Lugs could be omitted or used and it is envisaged that lugs could be used alone, without wells, or wells could be used without lugs, but lugs and wells are preferably used together. It is a particular advantage of the use of wells that they may be sufficiently deep as to cause a container to tilt to an extent noticeable by eye, if not correctly located within the well. This helps ensure that an operator is alerted to this incorrect positioning before further containers are added to a stack, thus encouraging the operator to correctly locate the first container, and thereby help ensure stability of the stack then formed.

Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the

drawings whether or not particular emphasis has been placed thereon.

CLAIMS

1. A carriage for supporting a container during transport, the carriage comprising a platform mounted on rolling means for supporting the container, wherein the platform is provided with a formation for co-operating with the container to hold the container when on the platform.
2. A carriage according to claim 1, wherein the formation is adapted to co-operate with a lower region of a wall of the container.
3. A carriage according to claim 2, wherein the formation can co-operate with a corresponding formation on the container.
4. A carriage according to claim 3, wherein the formation comprises a projection or a recess adapted to co-operate with a corresponding recess or projection on the container.
5. A carriage according to claim 4, wherein the formation comprises a projection extending inwardly of the platform.
6. A carriage according to any of claims 4 or 5, wherein the platform is provided with at least two of said formations to co-operate with corresponding formations on the container.
7. A carriage according to any preceding claim, wherein the platform is adapted to support a plurality of containers and includes a plurality of formations to co-operate with the plurality of containers.
8. A carriage according to any preceding claim, wherein the platform includes internal wall members defining at least one locating region, each to locate a container on the platform.
9. A carriage according to claim 8, wherein the or each locating region is

configured to be complementary to the container to be held.

10. A carriage according to claim 8 or 9, wherein the or each locating region is in the form of a well formed in the platform.

11. A carriage according to claim 10, wherein the or each well is complementary in shape to the container intended to be supported, whereby the container may be placed on the platform to mate with the well and therefore be located thereby.

12. A carriage according to any of claims 8 to 11, wherein the platform defines a plurality of said locating regions, each being adapted to locate a respective one of the plurality of containers.

13. A carriage according to claim 12, wherein the locating regions are arranged in first and second sets, the first set being provided to receive a plurality of containers in a first orientation and the second set being provided to receive a plurality of containers in a second orientation.

14. A carriage according to claim 13 or 14, wherein the wells of one set are deeper than the wells of another set.

15. A carriage according to claim 12, 13 or 14, wherein the platform defines six locating regions for the first set, and four locating regions for the second set.

16. A carriage according to claim 15, wherein the locating regions in the respective first and second sets are arranged generally perpendicular to each other.

17. A carriage for supporting a container during transport, substantially as described above with reference to the accompanying drawings.



18. Any novel subject matter or combination including novel subject matter disclosed herein, whether or not within the scope of or relating to the same invention as any of the preceding claims.



INVESTOR IN PEOPLE

Application No: GB 0019680.8  
Claims searched: 1 - 17

Examiner: Peter Macey  
Date of search: 10 November 2000

## Patents Act 1977 Search Report under Section 17

### Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): B7B (BTL1, BTL2, BTX2)

Int Cl (Ed.7): B62B (1/06, 3/04, 3/10)

Other: Online: WPI, EPODOC, JAPIO

### Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2241874 A (RUBBERMAID) see especially figure 1	1, 8, 9
X	GB 1583763 (GPG) see the figure	1, 2, 7, 8, 12
X	GB 1583325 (EASTWOOD) see especially figure 1	1, 2, 8, 9
X	GB 998630 (JENKINS) see all figures	1, 2
X	GB 834241 (JAMES) see especially figure 1	1, 2, 8, 9
X	GB 359531 (EVANS) see especially figures 1 and 2	1
X	WO 96/21591 A1 (CINO) see especially figure 6A	1-4, 6, 8, 9
X	US 4787808 (SHIMOJI et al) see especially figure 1 - 3, particularly items 14, 15, 18, 19 and 21	1, 2,

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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